

THE AMERICAN JOURNAL
OF
OPHTHALMOLOGY

VOL. XXXI.

FEBRUARY, 1914.

No. 2

ORIGINAL ARTICLES.

THE USE OF HOT AND COLD APPLICATIONS IN
OPHTHALMIC PRACTICE.*

BY LUTHER C. PETER, A.M., M.D.,

Associate in Ophthalmology, Philadelphia Polyclinic
and College for Graduates in Medicine;
Ophthalmologist to the Rush Hospital for Consumption and
Allied Diseases.

PHILADELPHIA, PA.

I know of no measures of equal value in ophthalmic practice, used so routinely by the especially trained and the uninitiated, about which there is more doubt—at least in the mind of the beginner—as to the discriminate indications for their use, than that of heat and cold. This doubt does not exist alone in the mind of the tyro in ophthalmology, but it becomes a point in question in minds rendered fallow by long experience and observation. Writers of modern text books tell us that the subject is sub judice. The causes for this doubt and difference of opinion are twofold. By some the physiologic action of these agents is not thoroughly understood, and in other instances it requires careful discrimination to choose the right measure at the right time.

Heat and cold are relative terms, expressing differences in the degree of temperature. In so far as our purposes are concerned, we can limit our study to their physiologic action upon the circulation, cell activity, the peripheral nervous system, and their effect upon bacteria. These studies have been carefully worked out theoretically and practically, and the conclusions to

*Read at the January meeting of the Philadelphia Polyclinic Ophthalmologic Society.

be drawn are clean cut and concise. Cold primarily is a depressant; it contracts arteries, veins, and capillaries and therefore slows the circulation; it checks cell and protoplasmic activity and therefore lessens the vitality of living structures. If the application be not too prolonged, this stasis of the circulation and of living tissues is followed by a reaction, and the pallor and later livid blueness is replaced by redness, due to dilatation of the smaller arteries. The pallor which follows the application of cold is due to contraction of the arteries and arterioles, and the blueness which succeeds is due to venous stasis and is the result of prolonged applications. Cold, therefore, is a styptic and may be used to control haemorrhage. It is rarely employed in this capacity, however, because a hot temperature accomplishes the same end, and more pleasantly to the patient. However, in case of a contusion, of or about the eye, nothing is so effective in preventing the "black eye" as cold, when applied promptly. All vessels, both arteries and veins, are immediately contracted, and leakage into the surrounding tissues is prevented.

The reaction, which is of so much value when cold is applied to the entire body, is the objection to its use locally, at least in the eye. To be of value, therefore, to the ophthalmologist, in preventing and reducing inflammation, cold must be applied continuously, and not intermittently as in the use of heat. In other words, in order to avoid the reaction, which means stimulation of the circulation and increased cell activity, cold must be continued uninterruptedly to the point of lividity, or venous stasis, when heat may be resorted to.

Its action upon the peripheral nervous system is that of a depressant. It lowers the nervous conductivity, and therefore relieves pain. If the application is short, a reaction will follow, which therefore increases the nervous conductivity and irritability. To relieve pain, applications must be prolonged. Cold, however, may be used as an analgesic to relieve pain of short duration, as after subconjunctival injections.

The action of cold in reducing cell and protoplasmic activity may also be applied to micro-organismal growth. When applied continuously, cold retards and in a large measure lessens bacterial growth. Its value as a prophylactic in the earliest stages of a traumatism must be apparent. In fact, to my mind, this prophylactic function is the chief indication for its use in ophthalmic practice. Inasmuch, however, as it acts with equally depressing results upon living cells and bacteria, we quickly

reach a period in its application when the devitalizing process must cease or cell death will follow. As a prophylactic and as a bacteriocidal agent, cold has a distinct but limited value.

Heat is a vital stimulant. From 100° to 112°F., it dilates the surface vessels and thereby quickens the blood stream. Action upon the circulation varies with the degree of heat. A temperature of 120° is a powerful and durable styptic. Hence its use after enucleation of the eyeball. It stimulates cell and protoplasmic activities, relieves venous stasis, and therefore not only tends to scatter inflammation by promoting normal cell activity and circulatory equilibrium,—but when inflammation is thoroughly established, it tends to hasten resolution by the same process.

Its action upon the nervous system varies with the degree of heat. A temperature of 98°F. acts as a sedative. Therefore the value of heating eye lotions to body temperature before instilling them into the eye. From 100° to 113°F., nervous activity decreases, and a temperature of 130°F. will totally abolish conductivity of nerve fibres, and therefore will relieve pain.

The action of heat upon bacteria is well known. In fact, high temperatures tend to inhibit the growth of bacteria better than lower temperatures. 130°F. is well borne, and although this temperature is not always sufficient to cause the death of bacteria, it will retard their development.

To recapitulate, cold is a depressant; it retards the circulation, delays cell activity, is analgesic, and to some extent bacteriocidal. Heat is a stimulant; it quickens the circulation, renders cell life more active, and in high temperature is analgesic, and of some bacteriocidal value.

As to the method of application. Water furnishes the ideal medium through which heat and cold may be applied. Text books refer to their application in the form of coils, the Japanese "hot box," hot water bag, electricity, etc. There are few conditions, however, if any, which do not admit of moist heat; and the student in ophthalmology will do well to restrict applications to water.

The best method of applying cold is by means of gauze compresses about three inches square and seven or eight layers in thickness. Two of these pads may be on a cake of ice while a third is applied to the eye, covered by an impervious material such as wax paper, over which may be placed a dry compress. To be effective, these compresses should be changed every three to five minutes. The essential element is continuous application,

day and night, if the inflammation is severe. One will rarely find, however, that cold will be tolerated for a longer period than two days, and in most instances, its efficiency will diminish in less than forty-eight hours. Applications of ice wrapped in gauze are to be deprecated because of the shock and great local depression.

Heat is best applied by gauze compresses, as in the method described for cold, with this difference: Compresses steeped in hot water will retain their heat for ten minutes if properly covered by wax paper and dry gauze. Therefore hot compresses should be changed about every ten minutes. Heat should be applied intermittently because the effect will continue for some hours after the applications are removed. Three periods of a half hour each during the day will accomplish maximum results,—although two periods of an hour each are equally efficacious. For the relief of pain, however, applications may be prolonged and repeated at more frequent intervals. Olive oil or petrolatum applied to the skin will prevent the irritation of the skin which may follow prolonged use of either moist cold or heat.

Flaxseed and other poultices should have no place in ophthalmic practice. They have the advantage of retaining heat for a long period, but they are uncleanly at best, and do not yield better results than those obtained by the ordinary hot compress. They are distinctly unsurgical.

The hot water bag, Japanese "hot box," and electricity, are recognized and approved by most surgeons but they have not grown into favor and are no improvement over the wet compress.

In choosing between cold and hot compresses, we have broad general rules to govern our judgment. These rules, however, admit of modification to meet the individual indications. Cold should be applied immediately after severe injury to the eye structures, whether surgical or accidental in origin. It seems to be the best form of application in the early stages of gonorrhœal ophthalmia. Conditions, however, must be carefully watched, and heat should be substituted as soon as the tissues give evidence of lowered vitality. It may also be used to relieve acute pain which is apt to be of short duration,—as for example, after subconjunctival injections. Its value in this class of cases is not so great as that of heat, primarily because heat is more soothing, and secondarily, the analgesia derived from heat is greater and more enduring.

Heat on the other hand has a wide range of applicability. One need but recall its physiological action to realize its value in eye conditions. In addition to its general effects upon local inflammatory processes, its value as a lymphagogue in itself, and its aid to other lymphagogic measures, gives it a wide range of usefulness,—particularly in the deeper inflammatory processes of the eye. By opening up the circulatory and capillary channels, it assists atropine in the dilatation of a spastic pupil; it enhances the value of dionin; its dual action after subconjunctival injections is of great value. In this latter role, it relieves the pain which oftentimes is severe, and it tends to reinforce the action of fluids injected, by opening up the blood streams.

As a styptic it is of greater value in the eye than cold. It therefore may be used to advantage in controlling haemorrhage after enucleation and in operations on the orbit, when a general anaesthetic is used. The high temperature necessary to stop the flow of blood is too severe for use in operations in which a local anaesthetic is used.

It is impossible in so brief a paper to speak specifically of the indications for the use of heat and cold in all possible eye conditions. I have aimed rather to draw conclusions on broader lines, as individual judgment plays an important role in the choice of these agents. I find, however, in my own personal experience that when in doubt as to which measure to use, heat is always dependable.

HEREDITARY OPTIC NEURITIS.

A. S. Worton (*Lancet*, October 18, 1913) gives an account of eleven cases of this disease, all occurring in males in three generations. The disease was transmitted through an unaffected female in every case. All were descendants of a common pair of ancestors, neither of whom was affected. Their ages varied from nine to thirty-two years. The author examined four of the patients and two of these have regained practically normal vision, some deficiency in light sense still remaining.

A MODIFICATION OF WÜRDEMANN'S SKIASCOPE.

By J. F. CROUCH, M.D., AND C. A. CLAPP, M.D.,

BALTIMORE, MD.

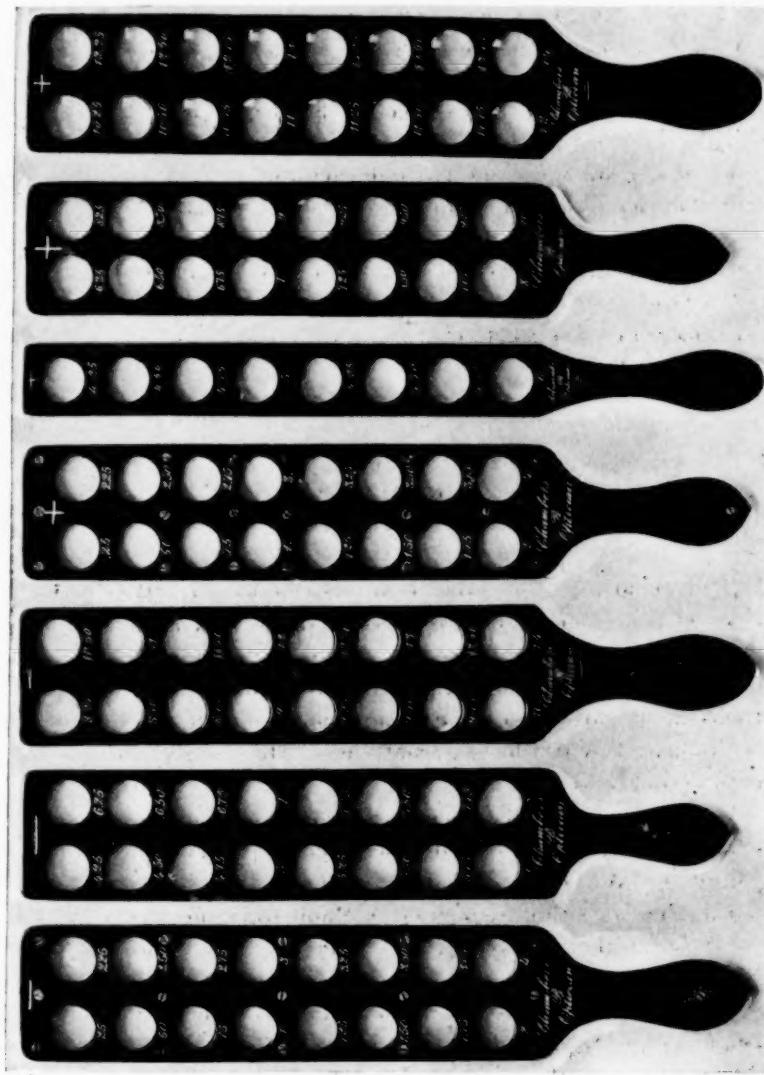
The Würdemann skiascope, or skiascopic lenses, as described in the AMERICAN JOURNAL OF OPHTHALMOLOGY, 1891, page 223, is a very useful and convenient instrument, but it lacks several features which are essential to accurate retinoscopy, especially if the operator is working at one-half meter instead of the three-fourths or one meter, which are the distances usually employed.

His instrument consists of 26 lenses set into a hard rubber frame, there being 13 plus lenses on one side and 13 minus lenses on the other, the strength of the lenses being .25, .50, .75, 1., 1.25, 1.50, 2., 2.50, 3., 3.50, 4., 5., 6. This makes an instrument rather cumbersome and heavy, but its greatest drawback is the *too great variation* of the strength of the lenses above the 1.50. Würdemann overcomes this fault by placing these in front of a trial frame with lenses of about the correct strength for reversal of the shadow. By this method, however, unnecessary time is consumed, and, besides, it is not so easy to follow the shadow where two lenses are used as with a single lens, the reflection of light from two surfaces being more confusing than from one. These same faults are found both in Gruening's and Maple's skioscopes.

To make the use of this instrument practical it is necessary to operate the skiascope oneself in order that the centering is exact, to insure its movement in the proper direction, and to save time. In order to meet these requirements we have had a whole series of lenses placed in similar hard rubber frames as shown in the cut. These frames are reversible so that either set of lenses can be placed before the eye, the strength of the lenses being marked on both sides of the container. The strength of the lenses varies by quarters up to —10, then by halves to —14, and in plus lenses by quarters to 14, there being eight lenses to a side, sixteen to the frame.

By the use of these simple instruments and working at a short range of one-half meter we believe better results can be accomplished than by any of the other methods; and not only better results can be obtained, but with a vast saving of time. The lenses can be changed very quickly and the relative move-

ment studies much better than where the lenses are placed in a trial frame, in which case, if one makes the changes himself he has to return to his primary position, and if he is working in



nearly complete darkness, as is possible with the electric retinoscope, he has difficulty in finding the lens desired. Those who make use of an assistant to change the lenses are also somewhat

distracted by the change, and here also it requires accessory lights in order to see to make the necessary selections.

The various forms of wheel skiascopes have not proved satisfactory to us. Critics will undoubtedly say that when we get up to —10. or more that variations in the shadows by one-quarter diopters are not appreciated. In many cases this is all too true, but there are some cases where we think we can see variations in changes of one-quarter diopter, even in these high errors.

All of our students and assistants who have used this method until they have become familiar with it never have changed to other methods. Of course there have been numerous instances when our colleagues have failed to be convinced after one or two trials. We, however, still believe it is the quickest and most accurate of all methods.

ORBITAL ABSCESS FROM INFECTION THROUGH THE ETHMOID.

John O. Roe (*N. Y. Med. Jour.*, December 20, 1913) reports two cases of orbital abscess caused by an extension from an ethmoid infection, in which he opened the abscess through the nasal cavity, in one case nearly an ounce of pus escaping. He discusses the advantages and disadvantages of the internal route as compared with the external one. He favors the former method and says:

"In the first place, the opening is made into that portion of the orbit where the abscess and phlegmon are generally most concentrated. We are also following the disease from its source and at the same time removing or eliminating the source of the infection in the ethmoid cells. There is also entire freedom from the danger of disfigurement or deformity; and we are giving drainage to the abscess through the most direct route. The relief is speedy and the complications of the external wound are avoided. In those cases where the frontal sinus is involved, even if this is not discovered until after the opening through the ethmoid has been made, it does not preclude a direct opening into the frontal sinus externally if found necessary, but, on the contrary, affords a more direct and effectual drainage."

THE CONJUNCTIVAL FLAP IN CATARACT
EXTRACTION; A NEW PROCEDURE.

(BLEB FORMATION AND DISSECTION BY SUB-CONJUNCTIVAL
INJECTION.)

BY PERCY FRIEDENBERG, M.D.,
NEW YORK.

The formation of a conjunctival flap in completing the corneal section now generally forms a step in the operation for the extraction of cataract since Snellen,¹ at Edinburgh, in 1894, called attention to its advantages. These are summed up by Thompson² in a recent monograph, as follows:

Immediate healing is invariably secured, likewise better coaptation of the wound and less post-operative astigmatism. The flap can be made to adhere to its position before the eye is closed and suturing is never necessary. It further has the advantage of guarding against prolapse of the iris or inclusion of the pillars, if an iridectomy has been done.

The conjunctival flap is cut by altering the plane of the cataract knife, inclining the edge toward the globe, and thus cutting flat backward and toward the sclera as the corneal section nears completion. The flap cut in this way cannot always be prepared and, as it were, predetermined. Byers³ speaks of really preparing a flap with scissors previous to corneal section in a case where he wished to ensure a large and well placed flap, not only above, but extending well down along the limbus to the puncture and counterpuncture. It is with the same end in view that I suggest the procedure which forms the sub-title of this paper, namely, the preparation of a conjunctival flap previous to corneal section by subconjunctival injection of an indifferent or anæsthetizing fluid just back of the limbus.

The advantage of this procedure is that the size and position of the flap can be predetermined and controlled to a nicety without actually detaching it and laying it down on the cornea, where if large it is apt to obscure the field.

Another point in its favor of at least as great practical value is that the bleb flap is raised above the level of the limbus and so can be cut through with the cataract knife with very little change of inclination, thus removing a "mental hazard," which is apt to make us turn back the knife edge too soon and cut into the sclera too far back in order to get a good conjunctival flap.

Incidentally, the corneal section approximates a single plane cut and thus tends to better apposition and smoother healing. There is less tendency to gape, and, consequently, less danger of iris prolapse or of incarceration of tissue in the wound. The more purely corneal the incision the more rapid the healing and the cleaner the operation, as there is no bleeding. It is generally admitted that the flap acts as a provisional protection and ensures temporary co-apportion. As to the definite healing of the section, the almost universal opinion that the conjunctival flap is an advantage in this regard, is opposed by Czermak. According to this author, the process of healing is altered by the formation of a so-called conjunctival flap, i.e., when the conjunctiva is detached a certain distance back of the corneo-scleral wound, and then cut through. A more or less broad flap of conjunctival tissue then remains attached to the corneal or anterior wound lip. This flap, spread out after operation, extends over the scleral wound lip, and is attached by its raw under surface to the scleral edge of the wound. The wound in the conjunctiva lies, accordingly, much further back than that in the cornea and sclera. It is evident that an epithelial plug proliferation is formed only in the conjunctival wound away back, and that there is no provisional closure of the corneal wound by proliferating epithelium, and, in fact, no closure at all except by adhesion, at least, until the fourth day when scar tissue begins to form. Wounds of this sort examined on the first few days, show, particularly with a steep section, little or no adhesion of the wound margins. The flap appears oedematous, and the corneo-scleral wound beneath shows through as a dark line which, if the section was large, may be almost a millimetre broad. The "oedema" of the conjunctival flap is only apparent. The flap is raised up by fluid. Its posterior edge has become fixed to the sclera and within 24 hours attached by epithelial proliferation. The safest wound, according to Czermak, in the early stages of healing is an oblique "flat" corneo-scleral wound; next in order, a "steep" or more or less vertical corneal wound section without a conjunctival flap; and last, a section with a conjunctival flap. The new procedure suggested to raise a conjunctival flap, is simplicity itself. To those who have made a routine, as I do, of Koller's sub-conjunctival injections for local anaesthesia before operation, the formation of a bleb flap is quite familiar and represents no additional operative step. The only practical modification is that the section should be made soon after injecting the fluid subconjunctivally; in other words, while the bleb

is still present and before the fluid has been absorbed. Instead of injecting at a distance, the fluid is of course injected near the site of operation, and equally of course, no massage of the globe or other manipulation is performed which would help to absorb the fluid. The needle is entered about five millimetres back of the limbus, pointing, at first, toward the centre of the pupil. As the bleb is raised it spreads out backward, i.e., toward the equator, as well as toward the cornea. The needle is then carried a bit forward along and down the limbus to either side of the vertical meridian, raising a bleb along the nasal and temporal side of the corneal margin as far down as the intended site of puncture and counterpuncture, if desired. The expressed fluid dissects a patch for itself and in burrowing raises up a bleb which extends along the limbus and back on to the sclera. The size and position of this bleb-flap can be controlled easily. A great advantage of the blunt dissection by fluid injection is that there is no danger of fenestrating the flap or tearing it, even with the most brittle conjunctiva or a very unruly patient. Where we use grasping forceps and scissors, a sudden uncontrolled motion of the eyeball is very apt to tear the conjunctival flap. It occurs to me that this point is of special advantage when we have to make a conjunctival flap to cover a penetrating wound of the globe and fear to apply the forceps, however gently, near the gaping wound in the cornea or sclera for fear of causing vitreous prolapse or other trouble. A large conjunctival bleb flap can be raised up and away from the globe and then detached as we please with scissors or other cutting instruments without coming in contact with the globe or causing the slightest pressure on its injured walls. It has been my custom to cut through the conjunctival flap, prepared as just described, with the cataract knife. The flap procedure can, however, be modified slightly to allow of subconjunctival extraction of the cataractous lens. For this purpose, the section is carried out as before, but the knife, after cutting through the cornea, sweeps for a distance under the conjunctiva, forming a pocket, and then withdrawn without detaching the conjunctival flap while cutting through, of course, along the nasal and temporal sides of the limbus. The lens can then be delivered into this pocket and allowed to escape through the side slit or another practiced with scissors, if necessary.

1. Snellen. Trans. Internat. Ophthalm. Congress, 1894.
2. Values of the Conjunctival Flap, etc. Amer. Jour. of Surgery, September, 1913.
3. Conjunctival Flaps in Ophthalmic Surgery. Trans. Amer. Ophth. Soc., 1910, p. 398.

TRANSLATIONS.

THE OPERATION FOR CATARACT WITHOUT ANY ANTERIOR CHAMBER.*

BY MISS A. LEONIDA,
BUCAREST.

(Translated by Adolf Alt, M.D.)

Two conditions are necessary for the successful extraction of a cataract: The cataract must be ripe and the anterior chamber must not be too shallow.

In general the depth of the anterior chamber stands, in relation to the development of the cataract, in such a manner that when the anterior chamber is shallow, the cataract is not perfectly ripe.

This, however, is not always so. In many cases the anterior chamber is very shallow although the cataract is ripe and can easily be detached from its capsule.

All oculists are familiar with the difficulties encountered in such cases. The extraction of the cataract is almost impossible since the knife cannot penetrate into the anterior chamber without injuring the iris and even the lens capsule.

A corneal flap of sufficient height cannot be obtained and usually blood interferes with the operation.

All this exposes the eye to certain dangers, especially a dislocation of the lens, the loss of vitreous body, etc.

If we wait till the anterior chamber is deeper this, it is true, may happen in a good many cases after a comparatively short time; but it frequently takes many long months, even years, before the anterior chamber has reached the desired depth.

In such a case, especially when the patient demands an early operation, we see ourselves forced to undertake the extraction of the cataract under the unfavorable conditions just mentioned.

Some patients have presented themselves at our clinic quite regularly for 4 or 5 years to be operated on, and have been sent home again, an operation not being deemed wise on account of the shallowness of the anterior chamber.

We have thought that it might be possible to help these patients, who are frequently afflicted with cataract in both eyes

*LaClinique Ophtalm., January, 1914.

and who can hardly count fingers at a very short distance, especially in plain daylight.

The question to be solved was, how to render the anterior chamber deeper so that the operation should become feasible.

I shall not mention the experiment we tried without being crowned with success. We simply desire to describe the procedure which has given us constantly results which were beyond our expectations and those of the whole clinical staff. Although the number of cases is, as yet, relatively small, we have thought it opportune now to publish this short preliminary report.

The procedure is very simple. It consists of an injection of physiologic serum (7 to 1000) into the anterior chamber.

By such an injection the anterior chamber is immediately rendered deep enough to perform the operation.

It is made in the following manner: After the usual antiseptic precautions in cataract extraction, and after the eye has been anaesthetized, we use a Luer syringe with a very fine needle. The eyeball being fixed, the point of the needle is entered at the temporal side exactly at the limbus, and in the horizontal meridian, the needle being held slightly obliquely so as to form an angle of 10 to 15° until it has penetrated through the cornea.

Then it is depressed and pushed forward parallel with the surface of the iris for two to three mm. into the anterior chamber.

At the same time between one and two cubic centimetres of fluid are injected. Immediately the anterior chamber acquires the necessary depth, and the needle being withdrawn, the operation can be successfully performed. We note that in some cases the pupil, which before the injection was normally 3 mm. wide, becomes enlarged up to 5 mm.

Here are some of our observations:

(1) L. I., woman, 46 years old, came to the ophthalmic clinic on October 9th, 1913, with ripe cataract in both eyes, having absolutely no anterior chambers. There was no iris shadow. Even when not exposed to the sun-light, the patient could not count fingers when placed close to her eyes. Light perception was normal. The cataract had been formed in the right eye 3 years and in the left eye 2 years.

The artificial enlargement of the anterior chamber was produced on October 11th, and the extraction of the cataract in the capsule was made after the method of Professor Stanculeanu.

On October 24th the patient left the hospital with V.=2/3.

(2) N. S., patient 68 years old. Senile cataract in both eyes. Case analogous to the preceding one. The cataracts were ripe, although the anterior chambers were very shallow. The cataract in the right eye was 10 years old, that in the left eye 9 years.

From the records of the hospital we saw that this patient had made a yearly visit to the clinic, but the operation had always been postponed because the anterior chamber was too shallow, although the cataract was ripe 7 years previously.

Thanks to the fortunate experience in the case mentioned above, we have been able to enlarge the anterior chamber in the same way, and the operation could be performed under the most favorable condition on October 15th, 1913.

Fifteen further cases have been operated on with equally satisfactory results. Since they were analogous to the two here related, presenting nothing particular, I refrain from detailing them.

These repeated successes encourage us to recommend this procedure to our colleagues. Without doubt they will obtain such results as we congratulate ourselves in having obtained at the Bucarest ophthalmic clinic.

"STRUMA" AN IMPORTANT FACTOR IN DISEASE OF THE EYES.

T. Harrison Butler (*Brit. Med. Jour.*, October, 18, 1913) attributes the cause of many affections of the eyes to chronic, non-virulent tuberculosis, founding his belief on the frequent occurrence of a focal reaction in the suspected eye, following the subcutaneous injection of tuberculin, and on the markedly curative effect of small doses of tuberculin in many eye conditions. The following affections are mentioned as frequently being due to chronic tuberculosis: Phlyctenular ophthalmia, most frequently due to this cause; photophobia in children; scleritis; interstitial keratitis, thirty per cent. of the cases; iritis; cyclitis, and choroiditis.

MEDICAL SOCIETIES

ST. LOUIS MEDICAL SOCIETY, OPHTHALMIC SECTION.

June 4, 1913.

Report of Case.—By Dr. F. Parker.

Mrs. H. G. was admitted to W. U. Hospital Clinic on May 22, 1913, with the following history: Three days previous she had headache, and vision in left eye began to fail. Five years ago right eye was affected and vision lost. Family history negative. Physical examination negative. Wassermann negative. Blood pressure 100. Urinalysis examination normal. Von Pirquet negative. Ophthalmoscopic examination: Right eye, old choroiditis in macular region, stellate in outline. Vision, R. E., shadows. L. E., 15/150. Extending from macula, down, on outer side are large yellowish spots in choroid. The overlying retina is cloudy and gray. My reason for presenting this patient was to determine the cause of the condition, if possible.

DISCUSSION.

Dr. Ewing: Has there been a sinus examination made of this case? I think that such an examination is advisable. Dr. Parker replied there had not been any sinus examination made.

Further Report on the Case of Bitemporal Hemianopsia Presented at the Ophthalmic Section, March 5, 1913.—By Dr. Julius H. Gross.

The patient, a widow, aged 64 years, gave a history of failure of vision, dating back about six years.

The general condition was as follows: She felt fairly well. Slept somewhat more than normal. Had excessive thirst. Perspired easily on left side of face and body. Had goitre, the left lobe especially was large.

There was a fair percentage of sugar in her urine.

Condition of eyes: Vision of right eye was nil. Left eye was 18/19. The temporal side of field, except a small part, about 15 degrees near the fixation point was dark.

There was interlacing of the red and green color fields.

The pupils responded when light was thrown on the seeing part of the left retina. Wernicke reflex sign was present.

The pupils contracted in accommodation. The movements of the globes were normal. The optic papillæ were greyish white, the fibres of the cribriform fascia were well visible; the vessels were of normal size.

The X-ray picture indicated that the sella turcica had been obliterated, probably by a neoplasm.

The patient was referred to Dr. Ernest Sachs, whose report follows.

Surgical Aspects of Case of Dr. Gross.—By Dr. Ernest Sachs.

This specimen obtained from a patient sent by Dr. Gross, is of interest from several points of view, ophthalmologically as well as surgically and pathologically.

The noteworthy features of the case were that this patient evidently had been suffering from pressure of a pituitary tumor on her optic nerves for over five years, and though her optic nerves showed marked changes, there was no evidence of intracranial pressure or involvement. The only other symptom she had was a persistent glycosuria. As is frequently the case in pituitary tumors, there was little or no headache and no vomiting. As a rule, when these symptoms do develop, the tumor has perforated the dura and grown up into the substance of the brain.

This patient, on account of the complete loss of vision of the right eye and the partial involvement of the left, was operated with the hope of saving the eyesight of the left eye. As the X-ray indicated that the tumor had grown downward and burrowed through the floor of the sella turcica, the nasal approach by the infralabial route employed by Kanavel and Cushing was employed. The specimen removed at the time of operation proved to be an adenoma of the pituitary.

Forty-eight hours after operation the patient, who had been doing well and was comfortably sitting up in bed, suddenly fell over with respiratory failure, and though artificial respiration was done for sometime, as the heart was still beating, died.

Autopsy revealed a large tumor, the size of a hen's egg, which had not only grown down into the sella turcica, but upward, compressing the third ventricle, and causing pressure atrophy of the right optic thalamus. The tumor had grown through the circle

of Willis and this formed a collar constriction about its middle. Besides, the pancreas showed a marked hypertrophy of the Islands of Langerhans, which accounted for the glycosuria. (The specimen was demonstrated as well as sections showing the tumor and degeneration of optic nerves and chiasm.)

Now as to the operative procedure in these cases. Some have advocated a route through the nose, while others, notably McArthur and Frazier, have advocated turning down a large frontal flap and resecting the supra-orbital plate, and Horsley has done a two stage craniotomy, lifting up the temporal lobe and approaching the pituitary from the side. In my opinion, no one of these methods is to be used to the exclusion of all the others, and it has been my feeling that in those cases where the tumor had grown downward into the sphenoidal sinus, the better approach was through the nose,—and where the tumor had grown up, the method of McArthur was more desirable.

In this case no operative procedure could have been of any avail, in view of the relation of the circle of Willis to the tumor. Furthermore, there was no way, whatever, of determining beforehand that the tumor had grown upward into the brain, as was shown by autopsy.

The most we can hope to do in many of these pituitary cases is to relieve symptoms and save the eyesight. Removing the tumor in this region will, in the majority of cases, I believe, not be possible, unless they be cystic. This case, however, again emphasizes what I have said before, that in order to help these people at all, we must see them early in their disease before the process has advanced to the stage such as this one had.

DISCUSSION.

Dr. Luedde: I would like to ask Dr. Sachs if there is greater danger of post-operative infection in the intra-nasal method than in the external cutaneous operation?

Also Dr. Sachs' reference to the presence of sugar in the urine as an early sign of pituitary disease, reminds me of a case which I saw about four years ago. This was a young lady about 22 years of age, referred to me from Springfield, Ill., on account of extensive haemorrhages in the retina in one eye which the examination by an oculist there had revealed several weeks before. The patient had been told she probably would die soon on account of serious kidney disease. The fact that only one eye was involved, the other eye being perfectly normal, caused me to

insist upon a very careful nasal examination. This examination by Dr. Sluder revealed a severe sphenoidal suppuration. The examination of the urine made by the late Dr. Rush showed a small per cent of sugar and a trace of albumin. In the absence of careful examination of the nose, the presence of sugar in the urine might have been taken as an indication of diabetes, thus the haemorrhagic condition in the retina could be accounted for by severe constitutional disease. However, with the clearing up of the sphenoidal suppuration, the sugar disappeared from the urine. Dr. Sluder and myself considered this an evidence that the severe infection of the sphenoidal sinus had produced some irritation of the pituitary body. The patient has been under observation repeatedly since that time; there has been no recurrence of sugar in the urine, the retinal picture returned to normal, and vision is perfect in each eye. I have referred to this case because it was one that made a profound impression on me at the time and has fixed in my mind this symptom of sugar in the urine to which Dr. Sachs has referred in connection with early diagnosis of pituitary disease.

Dr. Hoge: I might ask if there were any motor or sensory symptoms found?

Dr. Sachs: None whatever.

Dr. Gross, in closing: I only would like to say that I sincerely regret that all the members of the section, and all the gentlemen here to-night, did not see the patient when she was presented, since it has proven to be such an unusual and exceedingly interesting case.

Dr. Sachs, in closing: In regard to the doctor's question, that is the objection which has been raised to the operation through the nose: one cannot work through an absolutely sterile field, but if one is careful not to operate while a catarrhal condition is present, or when a patient is suffering from a cold, one is comparatively safe, for the nose is said to contain no pathogenic organism except at such a time.

I would like to ask a question. A number of years ago, Dr. Adolph Meyer, of Johns Hopkins Hospital, pointed out that there was a separate series of optic nerve fibres running in the temporal lobe, and in a number of early cases Dr. Cushing was able to find an incisura in the color fields in the upper and outer quadrant. This was only to be demonstrated when the fields were taken every 15° , and he believes that this is one of the earliest symptoms of pituitary disease. The subsequent course of

the disease of these patients proved that they had a pituitary tumor. Unless these fields are taken every 15° such a defect is missed, and it seems to me, therefore, of tremendous importance, and also emphasizes what Dr. Wiener has said, of taking very careful color fields even when there is but a remote possibility of intracranial trouble.

I should be glad to know whether such a defect has been a common observation in the practice of any of you.

October, 1913.

Severe Iridocyclitis with Hypopyon Following Cataract Extraction. Recovery with Excellent Vision.—(Abstract of paper.)—By Dr. John Green.

Following extraction a mild form of iritis which yields readily to mydriatics is not unusual. Inflammation of the iris of the plastic type is also encountered. Such an eye is seriously compromised. The outlook is even more dubious when, in addition to the signs of plastic inflammation, hypopyon develops. Under these conditions the therapeutic resources of the surgeon are taxed to the utmost and a favorable outcome is to be hoped for rather than expected.

An Irishman, age 60, was operated on by the combined method April 22nd. The wound healed by first intention. Five days after operation iridocyclitis developed, followed the next day by the appearance of hypopyon which extended one-fourth upward in the anterior chamber. Rapid improvement and ultimate cure with good vision followed the exhibition of large doses of urotropin.

Gradle found that, in rabbits, urotropin was excreted into the anterior chamber three hours after ingestion. It is probable that, in the concentration in which urotropin is excreted in the aqueous (about 1/75000) it will at least weaken infecting organisms sufficiently to allow them to be more easily attacked and killed by the normal antibodies in the various secretions.

I cannot disabuse my mind of the conviction that in this case an endogenous infection, which was rapidly becoming virulent, was converted into a milder form by increased antisepsis of the aqueous through the excretion of urotropin.

DISCUSSION.

Dr. Rosebrough: Knapp, in his chapter upon operations in "A System of Eye Diseases," edited by Norris and Oliver, mentions the possibility of the formation of a gelatinous exudate in the anterior chamber which begins with a great deal of pain, rapidly forms and just as rapidly disappears. He compares it to the same sort of exudate as is found in gonorrhœal iritis.

I think Dr. Green is to be congratulated upon the happy outcome of his case and I should like to mention a case of my own, which I am quite sure was not endogenous, but occurred from an external infection. These cases are more interesting to discuss in a theoretic way rather than to treat deeply in actual practice.

The patient was 88 years old and the eyes deeply situated in the sockets. Because of the depth of the socket I had difficulty in making the incision which, when completed, was too small. Upon enlarging the incision with Stevens' scissors, fluid vitreous escaped, the eyeball partially collapsed, and the lens was successfully delivered with the Weber loop. Two days later the patient, who had lost his sense of orientation and had slight delusions at times, tore the bandage off twice in succession, but upon examination the anterior chamber was restored and the pillars of the coloboma in situ. Upon the third day there was a greyish infiltration in the nasal side of the cornea and a small quantity of yellowish exudate in the pupillary area. I could trace the path of infection from the nasal side of the cornea to the pupillary area, for there was a distinct hazy line extending to the pupillary area. The patient had slight periorbital pain but none of a severe nature. There was no increase of the infiltration of the cornea, nor in the quantity of exudate in the pupillary area. It remained stationary, being encapsulated in the remnants of the lens capsule. The conjunctival sac was repeatedly cleansed with antiseptic lotions, iodoform at first and xeroform later was dusted upon the cornea, atropin instilled and hot applications applied. In a month the cornea cleared, the exudate disappeared and the pupil was drawn upward. The patient had perfect light perception. Further operative interference was refused six months later because of the patient's failing health.

Dr. Hardy: I would like to ask Dr. Green how much urotropin and for what length of time he used it?

Dr. Green, in closing: A gelatinous exudate appearing in the pupil after extraction is an exceptional occurrence and I recall having encountered this condition only once. The mass was

thick and tenacious and did not vary in contour or position with varying positions of the patient's head. It finally disappeared without leaving any trace. The exudate in this case was distinctly fluid, flowing to the right when the patient lay on his right side and vice-versa—a true hypopyon. In reply to Dr. Hardy's question, 75 grains of urotropin was given daily for three days; thereafter 30 grains daily for two weeks. At no time was there any haematuria, although, as I recall it, there was a little vesical tenesmus at one time.

Embolism of the Central Retinal Artery with Partial Preservation of Vision. (Abstract.)—By Dr. W. H. Luedde.

The case here presented came to my office yesterday stating that about sixteen hours before the right eye had suddenly become blind. That she could only see a little spot to the right side of the center with this eye. She is a housemaid, single, 23 years of age, apparently in good health. The ophthalmoscope revealed immediately the striking picture of embolism of the central retinal artery, but instead of the single cherry red spot at the macula there remained apparently intact an area of the retina between the macula and the disc. This remnant of healthy retinal tissue was explained by finding a cilio-retinal vessel, which passed in the direction of the macula from the temporal margin of the disc. No heart lesion has been discovered although the patient was carefully examined by Dr. Hempelmann. Blood pressure was 120 systolic; 70 diastolic. Urine showed a trace of albumin, microscopic examination negative. Examination of the nose and throat by Dr. F. C. Simon was negative except for a slight varicosity at the base of the tongue. The other eye was entirely normal. Patient's vision to-day is 16/150 in the affected eye and 16/10 in the normal eye. I have brought her to the meeting to-night because these cases are always of interest when of recent occurrence, as in this instance and on account of the unusually fortunate deviation from the common picture of retinal embolism by the preservation of a small sector of the retina intact.

(A recent examination of this patient by a gynecologist has made it appear likely that the embolism in the case presented October 1st was the result of an imperfect abortion.)

DISCUSSION.

Dr. Green: I had the pleasure of seeing this patient yesterday.

To-day the arteries are distinctly narrower, indicating an arterial block. Yesterday there was hardly any indication as to the site of the lesion, whether in the artery or vein. I would like to ask Dr. Luedde what therapeutic measures he has adopted so far?

Dr. Luedde, in closing: Among the therapeutic measures which I adopted was principally pressure on the globe which made absolutely no difference so far as I could determine. I did not use the amyl nitrate because I believed it too late to do any good. Also I waited until Dr. Hempelmann had made his examination to see if there might be any contraindications to its use. I do not believe that fifteen or sixteen hours after the plug had lodged in the retinal artery these measures are of any benefit. It is a question whether any one has ever seen any therapeutic success. In conversation, Dr. Alt referred to a case to-day of a man who came right in to him after retinal embolism. He said he massaged him until this eye became too tender to continue, but it made absolutely no difference in the condition. I think those cases that respond to any treatment are probably fortunate accidents—something like a case I had about a year and a half ago. A young woman partially cured herself. Total blindness was followed after several minutes by blindness affecting the upper one-half of the field. On examination it proved that this embolism had slipped into the inferior temporal branch. It may be that a person thus afflicted might produce by strenuous exercise, a drink of whiskey, aromatic spirits of ammonia, amyl nitrate, or any strong cardiac stimulant an immediate circulatory impulse which would dislodge the plug and push it toward the periphery of the retina and gain an area of good sight. Usually, however, these methods cannot be attempted until the plug is firmly lodged in the central artery. It seems to me more rational thus to exert pressure through the impulse of the blood column behind the obstruction than to dislodge the plug by pressure on the globe.

Keratitis Disciformis. Prompt Recovery Following Subconjunctival Saline Injections. (Abstract.)—By Dr. John Green.

The patient, a healthy farmer, aged 40, presented a circular gray infiltration of the cornea, which under magnification was seen to be made up of closely packed roughly circular dots. The clinical appearance was characteristic of keratitis disciformis. Treatment for three weeks with hot saline irrigations,

5 per cent. argyrol and dionin solution failed to effect any notable change in the appearance of the lesion. Patient was then given, subconjunctivally, 15 minims of a 2 per cent. saline solution. Within a week the area of infiltration had shrunk and was thinner. Several repetitions of the injection resulted in complete subsidence of the inflammatory process with a coincident rise in vision.

This type of keratitis has generally been regarded as a self-limited disease, practically uninfluenced by any form of treatment and terminating in more or less opacity, due to the formation of scar tissue. The improvement and rapid cure following repeated subconjunctival injections of a 2 per cent. saline solution, after the failure of classical methods, suggests that, after all, the course of the disease may be shortened and the final outcome be a restoration without serious impairment of vision.

DISCUSSION.

Dr. Post: I would like to ask Dr. Green what amount of pain follows the saline injections?

Dr. Green, in closing: There is very little pain with a 2 per cent solution, but there is more pain than with a normal solution. I am injecting it at the Children's Hospital in the case of a very neurotic child with interstitial keratitis without serious protest on the part of the patient.

Crossed Cylinders in Irregular Astigmatism.—By Dr. F. E. Woodruff.

It is not my purpose to discuss the various forms of astigmatism and their correction. The report of these cases has to do solely with the correction, as far as may be possible, by means of lenses, the irregular astigmatism whether due to faulty or irregular curve of the cornea, displacement of the lens, or variations in the density of the various sectors in the lens. By irregular astigmatism I refer to those cases of astigmatism in which the meridians of greatest and least refraction are not at right angles to each other. Consequently it is impossible to make use of a spherical lens in combination with any cylinder.

The irregular astigmatism may be of the compound hyperopic, compound myopic or the mixed variety. It may also be with or against the rule. Most eyes have more or less irregular astigmatism. Usually it is slight and causes no inconvenience. It is this condition which causes the stars and distant lights to send

out rays of light in various and irregular directions. We are perfectly well aware that the stars are not rayed but round, and yet so widespread is this fault that the usual representation of a star is a central light with radiating bright streaks. On looking at a distant street light we see that it seems to have radiations emanating from it in various directions varying in different individuals. In this way we can readily determine in a general way the homogeneity of our own lenses. In those who have vision more acute than normal, it is probable that it is due, at least in part, to a more homogenous lens and clearer transmitting media than are usually found.

This condition is congenital, while that due to fault in the cornea as the result of pathologic changes, is acquired. An irregular astigmatism in the lens due to varying density in the sectors of the lens accounts at times for monocular diplopia; especially is that true in incipient cataract. The condition of vision in these astigmatics can be well compared to vision obtained when looking through an uneven pane of glass with irregular surfaces.

I shall not go into detail regarding the causes of this condition; but in general trachoma followed by ulceration or ulceration uncomplicated had preceded these tests. In none had less than one and a half years elapsed between the time of the ulceration and the refraction. In one nine years had elapsed and the others had existed for some years. In none was there an incipient cataract present nor any acute inflammatory trouble at the time of the refraction.

The diagnosis is readily made by use of the Placido disc or the Square of Wecker, or by the shadow test, or the ophthalmometer. The patient will also naturally hold his head in the position where the rays of light will pass through the clearest part of the cornea, or where he gets the clearest image. If we wish to give the best vision in the direct line of vision, I have found that the stenopaeic slit has given me the best results, placing the disc next to the eye and adjusting plus or minus glasses on the side of the disc away from the eye and changing the axis of the slit until best vision was obtained in any given axis, and then turning the slit to the next most prominent axis as previously determined by the shadow or the ophthalmometer, and then adjusting plus or minus glasses and varying the axis as before until the best image was obtained in this position. Finally, using cylinders of the strengths previously obtained and varying their axes and strength until the best visual result was obtained.

The use of a pin hole diaphragm in the final test was useful in cutting off the rays of light not in the direct line of vision. In this way it has been possible to give glasses that were satisfactory and have been worn with comfort, whereas before no glass that had been ordered had given satisfaction or comfort. The following cases I wish to report:

April, 1909.—Dr. T., dentist, aet. 33. Fs. 15 feet. O.S.+5.00 D. cyl. ax. 20 \circ 4:00 D. cyl. ax. 90. 20/30 pt. 20/24.

May, 1910.—G. L., aet. 12. Fs. 14 ft. O.D.+5.00 D. cyl. ax. 105 \circ —3.00 D. cyl. ax. 180. 20/30. Fs. 14 ft. O.S.+4.50 D. cyl. ax. 165 \circ —9.00 D. cyl. ax. 90 $\frac{1}{2}$ of 20/24. $\frac{1}{2}$ 20/16.

November, 1911.—F. F. Housewife, now in office. Fs. 5 ft. O.D.+13.00 D. cyl. ax. 150 \circ —7.00 D. cyl. ax. 90. 20/30—. Fs. 5 ft. O.S.+12.00 D. cyl. ax. 20 \circ —7.00 D. cyl. ax. 120. 20/30.

December, 1911.—M. R. Housewife, aet. 45. Fs. 5 ft. —5.00 D. cyl. ax. 75 \circ —8.00 D. cyl. ax. 165. 20/40. O.S. —5.00 D. cyl. ax. 75 \circ —8.00 D. cyl. ax. 180. 20/40.

B. G. aet. 23. Housewife. 20/4—O.D.+1.00 D. cyl. ax. 30 \circ —1.50 D. cyl. ax. 150. 20/30 pt. 20/24.

In none of these cases had a satisfactory glass ever been worn, although all had worn glasses previous to this test. I have had recent report from four of these cases and the correction is still comfortable, the fifth one never paid her bill and I have lost sight of her.

Stenopæc spectacles have been recommended in these cases, but owing to the very limited field which is produced by such a glass, their use must be very limited. The vision when the cylinders were fitted at right angles uniformly fell back from one to two lines on the test chart. Although the corneal curve may change, I believe that it is well worth while to order such corrections when vision is manifestly improved and the comfort of the patient is materially increased:

DISCUSSION.

Dr. Green: I would like to mention something which Dr. Woodruff's paper reminds me of. It is not entirely apropos, but I had a patient in which there was a decided weakness of some of the muscles and I tried to correct the weakness, the diplopia, with prisms but I seemed to have difficulty in getting the prisms at the proper axis. The patient wore the prisms but became fidgety, and she herself tried to improve on the position of the prisms. She really did accomplish it, the diplopia disappeared

and after repeated tests I was satisfied that such was the case, and I prescribed the prisms in the position in which she had placed them; and she is still wearing them. Dr. Woodruff's case reminded me of this one and I thought it might not be amiss to mention it.

Dr. Luedde: Dr. Woodruff's report concerning the use of crossed cylinders has interested me because I have used crossed cylinders in selected cases for a number of years. However, not in the way that he has placed them but always at right angles to each other. One case in particular, which I recall at the present moment, was that of a young lady with a marked keratoconus in one eye. I was able in that case to get good binocular vision, but the determination of the cylinder was accomplished only by repeated trials such as Dr. Woodruff has described in his cases. The optical value of crossed cylinders on neutralization of the lens is always equivalent to a combination of spherical and cylindric lenses. Crossed cylinders with axes not at right angles are also equal by exact neutralization to a simple compound of sphere and cylinder, but the axis of the cylinder to be combined with the sphere to give this same value will not correspond with either of the axes of the crossed cylinders. The greatest advantage that I have found by the use of crossed cylinders has been the possibility of exceeding the ordinary limit of a trial case by combinations of this kind. The trial case may have no cylinder greater than 6. or 8. D., but by using crossed cylinders an effect equal to 12. to 16. D. can be attained.

PHILADELPHIA POLYCLINIC OPHTHALMIC
SOCIETY.

Meeting of December 11th, 1913.

The Aetiology of Uveitis.—Dr. William Zentmayer.

Dr. Zentmayer pointed out the change that had taken place in recent years in the assignment of causes and their relative frequency in causing uveitis. Some years ago there were two classes under which the vast majority of cases were placed, syphilis and rheumatism most of the remaining. To-day the latter as a cause is scarcely recognized. This, however,

has come about in part by the more restricted sense in which the term rheumatism is now used, being applied alone to cases of rheumatic fever. The other affections in which arthritis is a symptom have mostly been traced to a different origin.

What I shall have to say will be largely a résumé of the exhaustive survey of the subject by de Schweinitz at the International Congress last August.

The extreme vascularity of the choroid makes it prone to inflammation, especially to endogenous processes. Due to the persistence of Michel, tuberculosis is now recognized as a frequent cause of choroiditis as well as inflammation of the anterior part of the uvea. Syphilis is the cause in at least 50 per cent. of both iritis and choroiditis. Not all clinicians are prepared to eliminate rheumatism as a cause. As you well know, Krückmann has described a fibrinous type as characteristic of rheumatic and gonococcal toxæmia. Gout, which was at one time considered a not infrequent factor, is now considered by some to cause iritis only indirectly by its general toxic action. Gonococcal uveitis is a well recognized entity and besides the particular type assigned to it by Krückmann it produces a kerato-iritis in which minute vesicles form on the cornea and in which the inflammation is of a quiet type. As might be gathered from what has been said concerning the exclusion of various types of arthritis from the class of rheumatism because they have been found to arise from foci of staphylococci elsewhere in the body, these organisms are now rightly considered the ætiologic factor in the small number of cases of uveitis, complicating these affections. Since Elschnig's first communication on uveitis resulting from autotoxæmia, there has arisen a considerable literature on the subject, some of which opposes his views. As the conclusions of de Schwenitz on this subject are based upon the results of elaborate metabolic examinations in a series of cases of different forms of choroiditis and chronic uveitis, I shall quote them in part: "Inasmuch as intestinal putrefaction certainly depends upon the activity of bacteria upon the food-stuffs in the intestines, there seems good reason to believe that these bacteria or their toxic products may be the cause of an inflammation of the uveal tract, exactly as bacteria from any other foci of suppuration have a similar influence. In this sense, therefore, gastrointestinal intoxications have a right to be included among the ætiologic factors of uveitis."

Malaria, diabetes and nephritis are undoubtedly occasional causes of inflammation of some part or other of the uveal tract.

The Treatment of Choroiditis.—Dr. Wendell Reber.

Dr. Reber spoke of the advance that had been made in the last 20 years in the therapeutics of choroiditis. In the early 90's most patients with choroiditis were promptly placed upon inunctions and iodides and it was seldom that anything else was done for them. With improved laboratory methods it was found that certain forms of low grade choroiditis associated with uveitis were at times associated with gastro-intestinal toxæmias, as pointed out by Elschnig, de Schweinitz and others.

The laboratory diagnosis of syphilis has also helped us to a more intelligent therapeusis. The various tuberculin tests have enabled us to differentiate the now well recognized tubercular choroiditis and a question now being raised is whether choroiditis and uveitis are ever related to intra-nasal and accessory sinus disease. Because of the overwhelming preponderance of syphilis as an ætiologic factor, salvarsan and neo-salvarsan have come into vogue as potent remedial agents in this form of the disease, and there is now no question as to the value of the arsenical preparations in such inflammations of the vascular tunic of the eye.

In the tubercular forms of choroiditis the treatment of tuberculosis proper is naturally in order, and in the auto-toxic forms the best possible elimination naturally forms the basis of the treatment. In recent years the sub-conjunctival injections of normal saline solutions and weak oxy-cyanide of mercury solutions have been highly commended. We have ourselves seen the most brilliant results from this method of treatment and we have a distinct feeling that it might well be added to the other internal treatment in the treatment of sub-acute chronic choroidal lesions.

Retino-Choroiditis Juxta-Papillaris.—Dr. Leighton F. Appleman.

Dr. Appleman reported a case of what Edmund-Jensen named retino-choroiditis juxta-papillaris, a localized inflammation involving the retina and choroid immediately beyond the disc and occurring in young healthy adults without history of lues or other dyscrasia.

The cases reported by Dr. Appleman consulted him because of slight blurring of vision and pain in the left eye, which had

appeared 3 days previously, with pain near the inner canthus. The blurring had increased since he first noticed it.

Vision without glasses equalled 5/6 in each eye, increased in the right eye to 3/3, and the left eye 5/4 with glasses, which consisted of +0.25 sph. +0.25 cyl. axis 90 degrees R. E., and +0.25 sph. +0.50 cyl. axis 90 L. E.

Ophthalmoscopic examination revealed the media clear, disc swollen plus 3 D., and its edges obscured. The swelling extended into the retina above and to the temporal side, gradually blending with the normal retina in the neighborhood of the macula. The swelling was white at its thickest part just off the disc, and gradually diminished toward its periphery. The vessels were hidden by the swelling of the retinal fibres, the veins being engorged and tortuous. Slightly above the macula, four small, parallel, radially disposed haemorrhages were seen. Examination of the visual field revealed an absolute scotoma involving the area of the blind spot and extending over a portion of the nasal field. At the present time it involves practically the whole nasal field.

One week after he was first seen vision was reduced to 5/21 in the affected eye, probably due to the vitreous opacities which appeared about this time.

Treatment consisted of hot compresses locally and 1 per cent. atropine solution. Sweating by means of hot packs given daily, followed by inunctions of mercurial ointment to the point of salivation and later the administration of potassium iodide. By these measures the inflammatory condition began to improve, as did his vision.

At the present time he shows an area of degeneration near the disc, up and out, with some pigment heaping, involving an area about half the size of the disc, although there has been but little choroidal absorption in comparison to what I expected would occur. The disc edges are now fairly distinct. The vitreous opacities have disappeared, and his vision acuity is 5/6 without correction. This is improved to 5/5 with his correction.

The visual field is of prime importance in deciding whether the prognosis is a neuro-retinitis or an exudative choroiditis in juxtaposition to the nerve head. The most important and most constant change in neuro-retinitis being a concentric contraction of the visual field, enlargement of the blind spot and formation of scotoma. Whereas, in localized choroiditis the visual field will show a scotoma corresponding to the portion of the fundus

involved, the course of the inflammation being relatively benign, and the loss of central vision practically *nil* unless the macula be involved in the process.

Jensen believed the loss in the peripheral field to be due to a thrombosis of the arterial vessels in this area as a result of the exudate, the area supplied being thereby deprived of perception.

Gross-Peterson, who last year reported a series of 15 cases, attributes the visual defect to a destruction of the nerve fibres produced by the inflammatory focus. This seems to me the most plausible explanation.

As to the causation of this condition, disease of the accessory nasal sinuses should be thought of. The possibility of a toxin giving rise to the localized inflammation has been suggested, although not proven.

REFERENCES.

1. Edmund-Jensen. (*Arch. f. Ophthl.*, August, 1908.)
2. Gross-Peterson. (*Klin. Monatsbl. f. Augenhk.*, 1912: Abstract *Ophthalmology*, April, 1913.)

W. WALTER W. WATSON, M. D., Sec'y.

ABSTRACTS FROM MEDICAL LITERATURE.

BY J. F. SHOEMAKER, M.D.,
ST. LOUIS, MO.

THE TEETH AND THEIR RELATION TO THE EYE.

A. Morgan MacWhinnie (*N. Y. Med. Jour.*, October 18, 1913) says that back of every disturbance of the eye there is some physical derangement responsible for it, and he emphasizes the importance of finding the cause and removing it, rather than being contented with local treatment. The local manifestations and the physical derangements may be widely separated and the manner in which the eye changes are caused in many cases is often obscure. He believes that in not a few cases the ocular disturbance is due to diseased teeth which may show no evidence of decay, the trouble only being found when the X-ray or exploration is used. Spasm of accommodation is frequently caused by a diseased tooth socket. Haemorrhages of the eye and temporary blindness have been observed, caused by trouble at the roots of teeth. Two cases are reported by the author, in one of which the patient had not been able to use his eyes for reading longer than fifteen minutes for years without having severe pain in the eye. The most careful fitting of glasses afforded no relief. Repeated examinations of the teeth showed no evidence of any trouble with them. Finally, an X-ray examination showed an abscess at the root of the left cuspid. A hole was made above the tooth and about 1.5 c.c. of very foul smelling pus was evacuated. The next day and after that the patient could read as long as he desired with perfect comfort. In the second case the patient suffered with severe neuralgic pain in the right side of the face, eye and ear and the vision of the right eye was reduced to 6/30. Ophthalmoscopic examination showed marked congestion of the retina and optic nerve. No cavities could be found in any of the teeth and the application of heat and cold showed no sensitive teeth. However, pressure on the gums over the first upper and lower molar teeth showed some tenderness. Extraction of the upper molar and opening into the antrum evacuated considerable pus, but the pain continued until five days later the lower molar was extracted, when inside

of an hour all pain subsided and the vision quickly rose to 6/10 in the right eye. The importance of X-ray examination of the teeth in all cases of obscure troubles is emphasized.

CATARACT AND INTERNAL SECRETION.

C. Schicetz (*Norsk Magazine fur Laegevidenskaben*, September, 1913) gives an illustration of a calf with congenital goiter, cataract and various signs of cretinism, and he theorizes and presents numerous arguments to sustain the assumption that the internal secretions play an important part in the pathogenesis of certain forms of cataract. It has already been established beyond question, he states, that parathyroid insufficiency may lead to cataract. Other conditions which may contribute to cataract are insufficiency of the pancreas and sexual glands with excessive activity of the adrenals, hypophysis and thyroid. He thinks it is now established that cataract in many cases is an evidence of auto-intoxication (for example, tetany and diabetes), or of extraneous poisoning (ergot, naphthalin). The aim of his present communication is to emphasize the important part which must be ascribed to the functioning of the ductless glands. It is not a mere coincidence that Bunau found that 10.6 per cent. of all the cataract patients at the Halle eye clinic had had typhoid fever at some time. Mann this year reported the case of two brothers who developed first cataract and then myotonic and myotrophic symptoms with, later, signs of tetany. Hippel has also recently reported the case of an infant with double cataract whose serum responded positively to biologic tests with thyroid and adrenal tissue and with this alone. Gebb has also found a difference in the response to the biologic tests in the serum of persons with and without cataract.—*Jour. A. M. A.*